



During the period from April 13, 2011 through September 28, 2011 the Idaho State Department of Agriculture (ISDA) conducted and evaluation of pesticide residues on seven tributaries to the main fork of the Clearwater River. All of the tributaries are designated as salmonid spawning waters and research continues to evaluate the overall impact that certain pesticide residues have on threatened or endangered salmonid species. The seven tributaries evaluated for this study were Lapwai Creek, Catholic Creek, Potlatch River, Pine Creek, Big Canyon Creek, Little Canyon Creek and Cottonwood Creek (Figure 1).

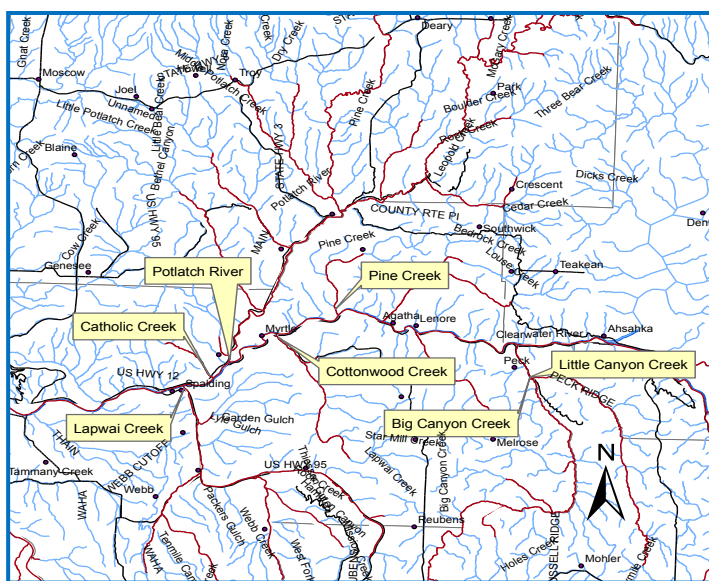


Figure 1. Pesticide monitoring sites.

During this program there were a total of 58 pesticide detections of 15 different pesticide compounds. The herbicides with the largest number of detection were metribuzin (22), 2,4-D (6), MCPA (6), bromoxynil (4), and pendimethalin (4). There were only two insecticides detected with dimethoate detected at Catholic Creek, and methomyl at Pine Creek.

The largest number of pesticide detections were at Pine Creek (18), Catholic Creek (10), and Cottonwood Creek (9) (Table 1). Of the 84 total samples collected during this study 69% (58 samples) had positive detections above the method detection limit (MDL).

ISDA considers a pesticide of concern (POC) as any pesticide that is at 50% or greater than an established Environmental Protection Agency Office of Pesticide Programs' (EPA-OPP) Aquatic Life Benchmark. Each Aquatic Life Benchmark is based on the most sensitive, scientifically acceptable toxicity endpoint available for various fresh water fish, and invertebrates for all scientifically acceptable toxicity data available to EPA.

Table 1. Pesticides detected and overall count per watershed.

Pesticides	Lapwai Ck.	Catholic Ck.	Potlatch R.	Pine Ck.	Big Canyon Ck.	Little Canyon Ck.	Cottonwood Ck.	Total
2,4-D	1	1		1	1	1	1	6
2,4-Dichlorobenzoic Acid							1	1
Bentazon	1							1
Bromoxynil			1	2			1	4
Desethyl Atrazine							2	2
Dicamba				1				1
Dimethoate		1						1
Diuron			1	3				4
Hexazinone			1					1
Linuron		1	1	1				3
MCPA		1		2	1	2		6
methomyl				1				1
Metribuzin	3	6	1	5	1	3	3	22
Pendimethalin			1	2			1	4
Simazine			1					1
Total	5	10	7	18	3	6	9	58

POC detections during the 2011 study were minimal with Catholic Creek having two (linuron, dimethoate), Pine Creek having one (linuron), and the Potlach River having one (Linuron) (Table 2). Management of linuron, and dimethoate should be a focus for applicators within this study area.

Table 2. Pesticides of Concern that were greater than or equal to 50% of an EPA Aquatic Benchmark.

EPA Aquatic Life Benchmarks Concentrations in ppb (ug/L)				Acute	Chronic	Acute	Chronic	Acute	Acute
Site	Date	Pesticide	Concentration	Fish	Fish	Invertebrate	Invertebrate	Nonvascular Plants	Vascular Plants
Catholic Creek	5/25/2011	Linuron	0.067	1,500	5.58	60	0.09	13.7	2.5
	7/20/2012	Dimethoate	1.6	3,100	430	21.5	0.5	84	—
Pine Creek	6/8/2012	Linuron	0.2	1,500	5.58	60	0.09	13.7	2.5
Potlatch	6/8/2012	Linuron	6.6	1,500	5.58	60	0.09	13.7	2.5

Recommendations

Although the majority of the pesticide detections during this study were below any established aquatic benchmarks there were still 58 overall detections of 15 different pesticides. This accounted for a 69% detection level of the total number of samples collected. This indicates that although the majority of detections were very low, pesticide residues continue to migrate into these salmonid waters. Additional recommendation for proper pesticide usage are as follows:

- ◆ Read and follow Label Directions always follow label directions for water quality protection.
- ◆ Follow Chemigation Law/Rules applicators must be licensed and follow state chemigation laws.
- ◆ Conduct maintenance and calibration of application equipment.
- ◆ Implementation of management strategies; field scouting, evaluation of pest control needs, selection of proper pesticides, irrigation management etc.
- ◆ Implement BMPs including conservation buffers, vegetative filter strips, sediment basins, and setbacks from live waters.
- ◆ Avoid runoff due to weather events, check the forecast prior to pesticide applications.
- ◆ Avoid overspray and drift.